



# WIDE BELT SANDER SPB910C



*Service instructions*

**ROJEK**

Dear customer

Please read this handbook carefully, it has been designed to serve as the installation, operation and maintenance manual for the SPB Series broad belt grinders. Please, study this manual before starting the machine into operation for the first time. After studying carefully and observing the guidelines indicated in this manual, you will be in a better position to make the best of the broad grinder benefits and you will be ensured long time trouble-free operation and safe work. The SPB Series broad belt grinders continue to be improved and your comments or field observations are highly appreciated.

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## 1. GENERAL DATA

### 1.1 PURPOSE OF MANUAL

This manual serves to provide a set of practical instructions for the correct and safe operation, the best possible utilisation of the machine and its cost-effective maintenance. By observing the guidelines indicated in this manual, you will be ensured the highest efficiency, long machine service life and safe operation.

In one of the closing chapters of this manual the possible operating defects of the machine and defects in the quality of the ground surfaces are covered and the available remedial measures are specified.

The SPB Series broad-band belt grinders are machine tools designed for machining wood in calibrating and surface finishing operations. These machines are intended to be used mainly in small to medium-sized joiner shops. The SPB Series is a new line of calibrating and finishing semi-automatic machines developed by our firm.

The design of the machines meets all requirements in terms of dependable operation, work safety and environmental protection. Dependable long-term machine parameters setting is ensured thanks to the sturdy and strong frame structure made of welded steel sections together with other design features.

The combined work unit installed in these machines includes the steel or rubber-coated calibration roller with the fixed or suspended platen with adjustable height. Optionally, the roller mechanism can include a pneumatic lifting device.

The control panel installed in the front is easily accessible and it is mounted directly on the switchboard box doors. The frame is covered with steel sheet panels covered with noise- and vibration suppressing mats. To provide for high service life of the machine, the table lifting screws are permanently covered with rubber sleeves and the work unit and feed belt shafts bearings are sealed with sealing rings.

The table height adjustment and hence the work piece thickness are indicated on a digital read-out with optional zeroing at any table elevation, providing for absolute or incremental measuring including optional reference point setting. As their standard feature, the grinders are fitted with a positioning device allowing automatic table elevation setting according to the work piece and material removal pre-setting with optional correction by the grinder belt thickness.

The machine identification data are presented on the machine nameplate attached on the back of the frame. The following data are included:

1. Machine model
2. Serial number
3. Voltage (3 x 230/400V/50 Hz)
4. Power input
5. Factory number
6. Weight

#### NOTICE:

WHEN ORDERING SPARE PARTS OR SEEKING INFORMATION ABOUT THE MACHINE, INDICATE PLEASE THE MODEL, LOT NUMBER, MONTH AND YEAR OF MANUFACTURE

## 2. ENGINEERING SPECIFICATIONS

### 2.1 SPECIFICATIONS - DIMENSIONS

The SPB series grinders comprise a line of machines differing by the width of the grinder belt as set under the EU Standards.

In the below Table, the specifications are indicated for the different models within the line.

SPB		630 R/C	910 R/C	1010 R/C	1100 R/C	1300 R/C
working width	mm	630	910	1010	1100	1300
diameter of working roller	mm	160	160	160	160	160
width of belt	mm	650	930	1030	1120	1330
length of the belt		1900	1900	1900	1900	1900
speed of sanding belt	m/sec.	18	18	18	18	18
height of workpiece (max./min.)	mm	160/3	160/3	160/3	160/3	160/3
speed of conveyor belt	m/min.	4,5/9	4,5/9	4,5/9	4,5/9	4,5/9
motor power of sanding belt (standard/optional)	kW	1 x 7,5/11	1 x 11/15-18	1 x 11/15-18	1 x 11/15-18	1 x 11/15-18
recommended protection – series C, D	A	32/40	40/50	40/50	40/50	40/50
two-speed motor power of conveyor belt	kW	0,43/0,3	0,43/0,3	0,43/0,3	0,43/0,3	0,43/0,3
motor power for table lifting	kW	0,18	0,18	0,18	0,18	0,18
voltage	V/Hz	3 x 400V/50Hz	3 x 400V/50Hz	3 x 400V/50Hz	3 x 400V/50Hz	3 x 400V/50Hz
air pressure consumption (without blower/with blower)	15/200	15/200	15/200	15/200	15/200	15/200
air input operating pressure	BAR	5,5	5,5	5,5	5,5	5,5
input operating pressure for belt blower	BAR	8	8	8	8	8
exhaust tube diameter	mm	R = 2 x 150 C = 1 x 150	R = 2 x 150 C = 1 x 150	R = 2 x 150 C = 1 x 150	R = 2 x 150 C = 1 x 150	R = 2 x 150 C = 1 x 150
exhaust plant power	m <sup>3</sup> /hod.	2000	3000	3500	4000	5000
air exhaust speed	m/sec.	20	20	20	20	20

\* Weight and dimensions are indicated for the basic design

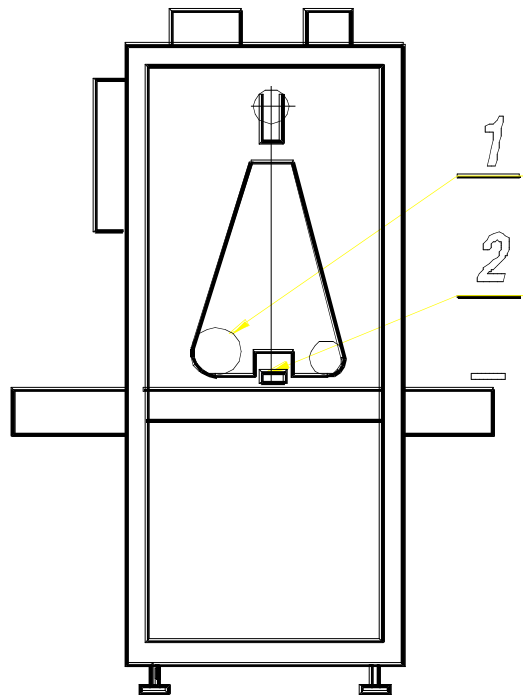
\*1 Other options available

\*2 Other options available

The following optional accessories are available for the broad belt grinders:

- stepless feed belt speed setting between 2.5 and 12 m/min, electronically controlled by the frequency converter which is fitted with a display optionally showing the set feed belt speed as well as other operating parameters of the feed belt motor
- extended work table suitable for grinding long pieces. The extended table can be fitted on either of or both the front or back feed tables
- automatic feed belt centring fitted with a position sensor and pneumatic valve securing the optimum feed belt position
- pneumatically suspended roller with pneumatically controlled lifting mechanism and mechanically set base position - the design is especially suitable for grinding veneered parts
- installation of another drive unit with pneumatically adjustable calibration roller

## 2.2 THE STANDARD DESIGN



- 1 - calibration roller
- 2 - fixed height-adjustable grinding platen

The standard design of the machine work unit comprises the combined grinding unit including the calibration roller available either in the steel or rubber-coated designs, of which the latter features helix grooving and 85 Sh hardness plus the fixed grinding platen manually height-adjustable and fitted with graphite slip surface. The fixed platen width is 50 mm.

The conveyer rubber belt features moulded surface and it is centred with two screws mounted on the front side of the machine. The pressure rolls also feature rubber coating of hardness 45 deg. Sh. The feed belt speed can be set to either 4.5 or 9.0 metres/minute.

The grinding unit belt oscillates on the rollers with the extreme positions secured by end stops. The belt oscillation is effected by tilting the upper tightening roller via the dual-action pneumatic valve operated by the solenoid valve controlled by infra-red sensor illuminated by optical cables.

The height of the work table with the grinding belt is indicated by a digital sensor with a display which can be switched over between the absolute and incremental table height reading modes. In the absolute mode, the display shows the distance between the feed belt and the calibration roller with read-out accuracy of 0.1 mm. The measurement is set by the manufacturer for the grinding belt thickness of 0.8 mm. Correction coefficients can be programme in the measuring device for other grinding paper thickness. In the incremental mode, the display can be zeroed in any work table height and to move the table by the desired dimension such as for the desired wood removal. The two modes can be switched over between at any time. For accurate absolute measurement, a reference point must be set up. The procedure to do this is described in Chapter 5.2.

## 2.3 PERFORMANCE LIMITS

The limit service parameters are set and inspected by the manufacturer. To avoid any risk of accident these values are not allowed to be adjusted. The following limit parameters apply:

MINIMUM WORKPIECE THICKNESS            3 MM  
MAXIMUM WORKPIECE THICKNESS        160 MM  
LIMIT WORKPIECE WIDTH DIFFERS BY THE MACHINE MODEL

The minimum workpiece thickness can be adjusted by the servicing staff.

## 2.4 NOISE LEVEL

			under
load	free		
Acoustic output Lpa dB(A)	80	78	

### CAUTION

Exposure to extensive noise (over 85 dB(A)) for a long time may cause damage to your health. It is necessary to wear the prescribed protective gear such as ear protectors or plugs.

## 2.5 SAFETY FEATURES AND MACHINE SHUT-DOWN

The main unit is shut down with immediate effect by the following devices:

A - the TOTAL/EMERGENCY STOP button installed on the control panel

B - side end-stops micro-switches limiting the lateral motion of the belt

C - grinding belt micro-switch - the machine is switched off whenever the belt gets loose or torn

D - feed bar placed over the feed end

E - side doors safety switches - switched off when the door opens

F - motor thermal cut-outs activated in case of motor overload or short-circuiting in the electrical systems of the machine

G - the master switch placed on the control panel. The master switch can be locked to prevent the machine being handled in an unauthorised way during shut-down

The Safety features specified under above articles A to G will switch off the main unit within 4 seconds from their activation. The motor and rollers moments of inertia are braked by a compressed air-actuated disc brake. The machine is also switched off once there is a mains voltage defect.

## 2.6 ELECTRIC AND PNEUMATIC DIAGRAMS

The electric and pneumatic diagrams form parts of this manual and their copies are kept in the lid of the switchboard installed near the control panel. Viz enclosed.

## 3. SAFETY MEASURES

### 3.1 SAFETY PRECAUTIONS

**Throughout this Manual, the following symbols are used:**

#### CAUTION!

Failing to conform to these instructions can result in damage or destruction of the machine.

#### WARNING!

Failing to conform to these instructions can result in putting the operator or other persons under risk of injury.

#### BASIC PRECAUTIONS

a) before starting the machine into operation or before starting any maintenance or whenever another intervention with the machine is intended, always study first this Manual

b) the machine may be transported, installed or dismantled and relocated only by competent worker authorised to undertake such operations

c) the machine may be operated only by trained personnel

d) any interference with the electrical systems of the machine may be done only by competent staff,

e) the space in front of the machine must be kept strictly clean and free of obstacles so that immediate access to the stop bar is possible

f) never open the side doors or remove the covers when the machine is in operation

g) whenever stopping work, shut down the machine and switch the master switch OFF

h) when operating the machine, wear clothes with the cuffs buttoned up and take off any bracelets, rings and watches you may be wearing and take care that any loose parts of your clothing are tightened or removed

i) when working, wear the prescribed boots and protective eyewear

j) never use any materials producing sparks as there is acute danger of fire

- k) load in the machine only the material for which it is intended to be used. Avoid any material combinations causing sparks to develop as there is the risk of fire
- l) never put any articles on the rubber feed belt.

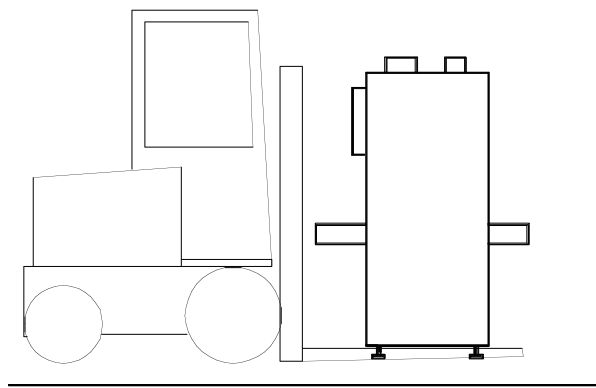
**THE MANUFACTURER SHALL NOT BE HELD LIABLE FOR ANY DAMAGE IF INCURRED BY NON-OBSERVANCE OF THESE SAFETY GUIDELINES**

#### 4. SETTING UP THE MACHINE

##### 4.1 LIFTING THE MACHINE

The machine may be lifted only by a high- or low-lift fork or pallet truck. The load carrying capacity of any such truck must be at least the overall weight of the machine. The fork must extend beyond the lower frame of the machine by at least 50 mm.

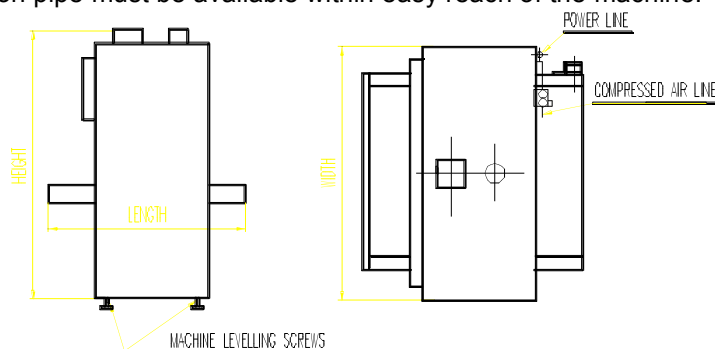
FIGURE 5



##### 4.2 SETTING UP THE MACHINE - FIGURE 6

The machine must be placed on a perfectly flat surface. only perfectly levelled machine ensures that the prescribed grinding accuracy and surface quality parameters are met. When setting up the machine, never forget to account for the parts to be worked and leave sufficient space in front of and behind the machine. There must be empty space all around the machine. The space must be sufficient to allow for easy and full opening of the doors for maintenance and cleaning. In order to ensure easy exchange of the grinder belt, the machine must be easily accessible particularly from its right-hand side. The work area must be properly lighted. The mains outlet and the points to connect the air hose and the extraction pipe must be available within easy reach of the machine.

fig 6



To set up and level the machine, proceed as follows:

- a) place the fork of the fork-lift truck underneath the lower frame of the machine. Lift the machine to the desired height and move it to its place of installation. Lower the machine on the beams screwed under the machine. Open the side doors and remove the four bolted supports. Loosen the screws which hold the transport beams and lift the machine. Take away the beams.



- b) screw the four supports in their respective holes in the frame
- c) position the machine as desired
- d) place a level along and across the machine table and level the machine by rotating the screw supports

**CAUTION: ATTHE TERRITORY OF THE CZECH REPUBLIC, NEW MACHINES ARE INSTALLED AND STARTED INTO OPRATION BY THE MANUFACTURER WITHTHE SERVICE CHARGE INCLUDED IN THE SALES PRICE**

#### 4.3 CONNECTING THE MACHINE TO THE MAINS

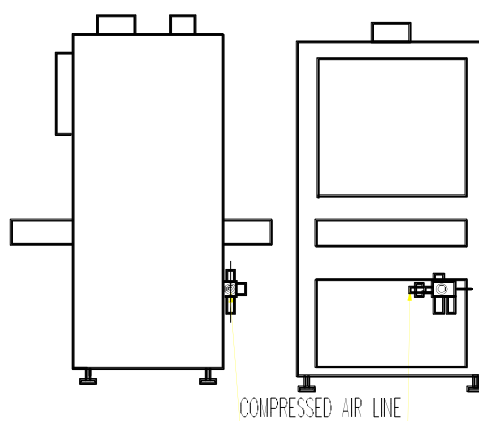
The machines are fitted by the manufacturer with a power line 3 meters long plus the terminal strip box. The mains voltage and frequency must conform to the specifications indicated in the product nameplate. The mains must be dimensioned according to the power rating of the installed motor and the power supply must be fitted with a separate cut-out.

**WARNING !**

**THE ELECTRICAL CONNECTION OF THE MACHINE TO THE MAINS MAY BE DONE ONLY BY A COMPETENT PERSON**

Never attempt to switch the machine ON once it was connected to the mains. The machine can be switched ON only after the compressed air line is connected in pursuance of instructions in Chapter 6.1 STARTING THE MOTOR.

#### 4.4 CONNECTING THE COMPRESSED AIR LINE - FIGURE 7



The compressed air supply must be free of condensed water and other dirt. The minimum sustained compressed air supply pressure is 0.6 MPa.

The air line is connected as follows:

- a) The air line of inner rated diameter Js 8 is fitted on the slide valve nozzle fitted on the air filter unit and clamped.
- b) Check the air filter unit reservoir for pneumatic oil. Should there be none, remove the reservoir and fill it with oil. The left-hand reservoir (the first from the inlet hole) serves for condensate precipitation and collection of dirt. The reservoir can be removed and cleaned in the same way as that of the pneumatic oil supply.
- c) There is a control screw on top of the inlet unit body over the oil reservoir. With this screw the quantity of oil added in the machine system can be adjusted. Set the screw by tightening it all the way down to release it by about 1 revolution depending on the air treatment unit used. The screw is set by the manufacturer and the reservoir capacity is designed to last for about 50 operating hours
- d) let the compressed air in the inlet pipe and by sliding the manual valve collar, ultimately in the pneumatic system of the machine.
- e) using the manual wheel of the pressure reducing valve set the air pressure to 0.4/0.6 MPa at the inlet gauge - the pressure controls the grinding belt tightening.

f) on the oscillation system pressure reducing valve gauge , set the pressure to 0.3 MPa - the pressure controls the grinding belt oscillation frequency.

**CAUTION: USE ONLY PNEUMATIC OILS DESIGNED FOR THE PURPOSE WHEN RE-FILLING THE AIR TREATMENT INLET UNIT. THE USE OF OTHER OILS CAN CAUSE DAMAGE TO SPECIFIC COMPONENTS OF THE MACHINE.**

#### 4.5 CONNECTING THE EXTRACTION DEVICE - FIGURE 8

The inlet pipe of the extraction system of the necessary dimensions by the machine model is connected to the inlet nozzle on top of the machine and secured with wire clamp. The sawdust is evacuated via piping at the calibration roller level and via a hole in the upper machine casing.

The extraction system will operate as intended only if the machine is connected with an extraction ducting system meeting the specifications as indicated in the ENGINEERING SPECIFICATIONS chapter of this manual. To make the connection as easy as possible, linking pieces are available from the manufacturer.

**THE EXTRACTION SYSTEM MUST BE SECURED AGAINST ELECTRO-STATIC DISCHARGE.**

1 . . MAIN EXTRACTION HOLE 150 mm - extraction from around the belt

### 5 PREPARING THE MACHINE FOR OPERATION

#### 5.1 THE CONTROL PANEL AND THE CONTROL FUNCTIONS ENCLOSURES 4 OVERVIEW OF THE CONTROL ELEMENTS AND THEIR FUNCTIONS HV

The master switch serving to switch ON and OFF the power supply of the electrical system of the machine. If the switch is in its 0 position, the electrical system of the machine is switched OFF the power. If the switch is in its I position, the electrical system of the machine is switch ON. If necessary, the master switch can be secured with a padlock to prevent it to be inadvertently operated.

#### **WARNING**

**With the master switch in the 0 - OFF position, there is voltage on the input terminals of the machine!**

#### 5.2 WORK PARAMETERS SETTING

To set the work parameters, one of the two available operating modes is selected.

##### 1. GRINDING ROLLER CALIBRATION MODE

This procedure is chosen when the calibration function is desired to be used. The operation is made with grinding belt grain size 60 - 80 with material removal between 0.1 to 0.8. The feed belt speed is 4.5 m/min.

The workpiece surface is straight with rough surface finish.

#### **WARNING:**

**THE LIMIT MATERIAL REMOVAL IN THE CALIBRATION MODE IS 0.8MM**

##### 2. GRINDING WITH THE GRINDING PLATTEN

This operating mode is chosen when smooth surface with minimum roughness is desired - the smoothing mode. The grinding platen is designed to press the grinding belt against the workpiece surface, following roughly the workpiece surface. With the smoothing operation, material removal is set to about 0.1 mm and grinding belt of grain size 120 and higher is used.

The general rule to follow is, the finer the grain size, the lower the material removal. The higher feed belt speed (9.0 m/min) is used.

**WARNING:**  
**THE LIMIT MATERIAL REMOVAL WHEN GRINDING WITH THE GRINDING PLATTEN IS 0.1/0.2 MM.**

### 3. MACHINE TABLE ELEVATION SETTING - MATERIAL REMOVAL SETTING

To set the machine table elevation and hence the material removal can be set in either of the following methods:

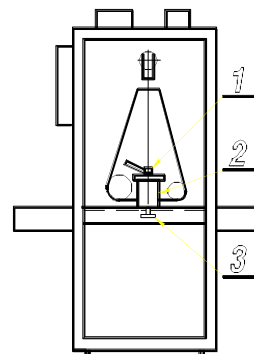
#### **ABSOLUTE MEASUREMENT**

1. Using this procedure, the measurement display button is switched in the ABS mode. In this mode, the display shows the absolute table elevation, that is the distance between the feed and grinding belts surfaces with the grinding belt thickness set to its default value of 0.8 mm by the manufacturer. The belt thickness depends on the grain size and it can differ for belts of the same grain size from different vendors. Moreover, the belt thickness depends on the belt wear.
2. Measure the workpiece to machine thickness with a vernier calliper. Subtract the desired material removal and using the table control buttons, set the table elevation on the value so obtained. The table elevation is shown on the display. Should the actual grinding belt thickness differ from the default of 0.8 mm, the difference against 0.8 mm must be subtracted from or added to the displayed value to adjust the table elevation setting as necessary. The measuring system fitted allows the difference to be stored in the device memory as a correction parameter. For additional details, see please the measurement system Manual.

#### **INCREMENTAL MEASUREMENT**

1. Set the difference in the thickness of the grinding belt used against 0.8 mm on the positioning device scale.
2. Using the SB5/SB6 buttons, set the table elevation so that the workpiece fits freely under the positioning device micro-switch. By depressing the SB5 button, lift the machine table until it stops. At this table elevation, switch the measurement device into the INCR mode to zero the display.
3. Using the SB5 button, lift the table by the desired material removal. The material removal can be pre-set at the positioning device scale so that the grinding of the work piece can commence directly once the positioning device micro-switch is reached.

### 5.3 EXHCANGING THE GRINDING BELT FIGURE 11



- 1 . Hand-operated lever with screw
- 2 . Temporary spacer
- 3 . M12 nut with plastic head

To exchange the grinding belt, proceed as follows:

- a) Switch the master switch OFF and open the right-hand side door of the machine. Switch over the manual valve lever to release the grinding belt.
- b) If the grinding platen bar is installed, remove it.
- c) Remove the screw with the hand-operated lever retaining the grinding unit on the right-hand side of the machine frame and remove the spacer roller.
- d) Place the grinding belt on the work unit so that it is 10 mm from the end stop arm. Re-install the spacer roller and secure it with the screw with lever and nut.

e) Switch over the manual valve lever, tighten the belt, shut the side door and switch ON the machine.

#### **CAUTION**

**TAKÉ CARE TO LOAD THE GRINDING BELT AS INDICATED BY THE ARROWS. THE ARROWS MUST POINT AGAINST THE MOVEMENT OF THE WORK PIECE. WHEN EXCHANGING THE BELT, ALWAYS CLEAN THE INSIDE OF THE MACHINE. WHEN EXCHANGING THE BELT, SWITCH OFF THE EXTRACTION SYSTEM.**

#### **5.4 REMOVAL AND INSTALLATION OF THE GRINDING PLATEN AND THE FIXED PLATTEN**

The grinding platen is removed always when the belt is exchanged as described in Chapter 5.3 above. Furthermore, the platen is removed when grinding by the calibration roller only is to be used.

Hold the grinding platen bar in the hole in its free end and remove the bar carefully. The grinding platen bar must be removed and re-installed only with loose grinding belt.

The bar can be reinstalled after the contact surfaces in the frame have been cleaned and after inspection of the platen contact surface. The platen contact surface is fitted with a graphite pad which must be replaced by a new one whenever worn out. The pad is exchanged by sticking the new pad to the platen contact surface after the old one has been removed. When reinstalling the platen bar, take care to avoid any damage to the grinding belt.

### **6. OPERATING REGULATIONS**

#### **6.1 STARTING THE MOTOR**

Before starting the motor, the following steps must be taken:

- a) check the compressed air line and setting of the pressure reducing valves
- b) check the power line – the digital indication display must be lit once the machine is switched ON
- c) check whether the belt is installed on the grinding unit and whether it is free off the end stops
- d) switch over the manual valve lever on the side of the grinding unit and tighten the grinding belt.
- e) check whether the side doors are closed and their safety switches closed.
- f) depress the green START button and later the green SB2 button. The Grinder belt motor starts to run. Wait until the operating speed is reached and the motor runs at constant speed.
- g) by the VS switch, set the desired feed rate starting from position 1 for 4.5 m/min. Depress the SB4 button to start the feed belt moving. Wait a few minutes and check the feed belt centring. If necessary, centre the feed belt by rotating the adjustment screw on the appropriate side (the one towards which the belt tends to move) and wait some time. Repeat the procedure if necessary.

## 7. MAINTENANCE AND ADJUSTMENT JOBS

### 7.1 CLEANING AND LUBRICATING THE MACHINE

#### CAUTION

**BEFORE STARTING ANY CLEANING OR MAINTENANCE SWITCH THE MASTER SWITCH TO THE 0 – OFF POSITION.**

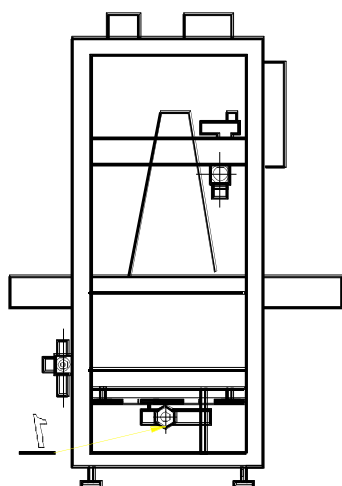
Clean the machine daily with compressed air to prevent any dirt accumulation and to provide for dependable and safe operation of the machine. Open the side door and blow the inside of the machine clean with air. Clean the feed belt in the same way.

All bearings used in the machine are lubricated with long-life lubricants and they require no current lubrication. The bearings are sealed with sealing rings. The lubricant fill life is 4000 service hours. The screws of the table positioning mechanism are lubricated in the same way. The pneumatic system components are lubricated by oil droplets mixed with the air in the air treatment unit. Check the oil level and refill the pneumatic oil reservoir as necessary, following the guidelines given in Chapter 4.4.

**The worm gear is filled with long-life oil with service life 20,000 hours.**

### 7.2 TIGHTENING THE TABLE LIFTING CHAIN FIGURE 12

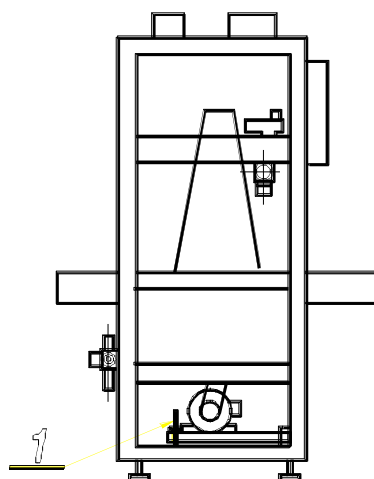
FIGURE 12



#### 1 . ADJUSTMENT SCREW

The chain can be tightened by operating the tightening screw on the tightening lever arm. Loosen the securing nut, tighten the screw as necessary and re-tighten the nut.

FIGURE 13



### 7.3 TIGHTENING THE DRIVE BELTS

#### 1 . TIGHTENING THE V-BELTS

### 7.4 MAINTAINING THE PNEUMATIC SYSTEM

The pneumatic system requires no special maintenance. Check regularly the oil in the air treatment unit as indicated in Chapter 7.1 and refill the oil as necessary. Use only pneumatic oil. Clean the sludge separator bottle as necessary, as indicated in Chapter 4.4.

### 7.5 SETTING THE FIXED PLATEN HEIGHT

This setting is made when necessary, such as in case the platen contact pad is worn. Remove the platen bar and grind a sample piece, preferably with a belt that is not worn too much. Rotate the adjustment nut to raise the platen by about 0.5 mm. Insert the platen bar and without changing the table position re-grind the sample on which a zigzag line has been drawn with a pencil.

Repeat the grinding and lower the platen in the step-wise fashion by rotating the adjustment nut. Once the drawn line disappears, the material removal is about 0.1 mm. Secure the adjustment nut in this position as the platen is set correctly. Point the arrow tip to indicate the centre of the scale.

## 7.6 GRINDING BELT STORAGE

The standard of grinding and the grinding belts service life are directly related to the manner in which the belts are stored. Store the belts in their original packing at temperature between 15 and 25 degrees and humidity 40-70%. Never use warped or wet belts.

## 8. TROUBLESHOOTING

### 8.1 POSSIBLE DEFECTS, THEIR CAUSES AND AVAILABLE REMEDIAL ACTIONS

In the following, find please the operating problems most likely to be encountered, together with their likely causes and remedies.

#### CAUTION

**WHENEVER THE MACHINE IS TO BE INTERFERED WITH IN ANY WAY WHATSOEVER, SWITCH OFF THE MASTER SWITCH AND SHUT THE MACHINE DOWN.**

PROBLEM	CAUSE	REMEDY
The machine fails to start after the SB2 button is depressed	control voltage circuit broken	check the operation of all safety features according to chapter 2.5 A to F and make any failed element operational check the air supply and the belt tightening check fuses F1, F2, F4 and replace them by good ones if necessary torn belt end stop tripped
The machine stops while in operation the grinding belt is outside the rollers operating surface	Failed belt oscillation device	Check the light cables lenses for cleanliness. Clean the lenses. Check the air pressure on the pressure reducing valve of the oscillation device (0.2 to 0.3 MPa), check the sensor power line – the yellow control on the sensor must be lit
Although the main motor is running, the machine fails to grind	Loose drive belts	Tighten the belts as described in chapter 7.3
The feed belt fails to start moving, the table lifting fails to operate	Motor switch QF 2 OFF	Switch QF 2 ON as described in 5.1
The main unit motor stopped with the machine running	QF 1 OFF – overheated motor	Reduce the material removal. Check the grinding belt for

		wear. Exchange worn belt. Check the electric current demand
The digital indication fails to operate	Power circuit fuse failed	Exchange fuse F4 Clean the sensor and magnetic tape.

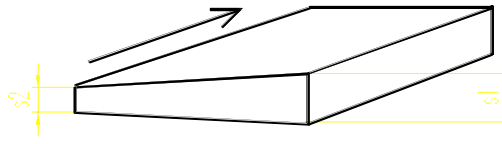
**WARNING**

**SHOULD THERE OCCUR OTHER PROBLEM THAT CANNOT BE REMEDIED BY FOLLOWING THE ABOVE GUIDELINES, CONTACT THE MANUFACTURER**

**8.2 WORK PIECE SURFACE DEFECTS**

Operator errors, wrong machining parameters, belt or calibration roller or platen wear and dirt can result in the following surface defects on the processed surfaces:

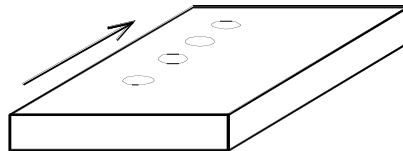
1. Thickness difference



Possible causes:

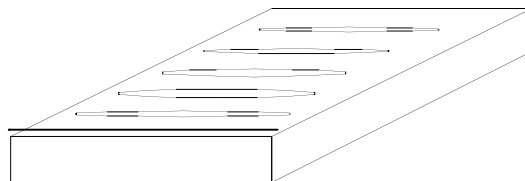
- incorrect table alignment with the roller or platen – align the table
- contact roller
- platen wear

2. Surface pitting after calibration



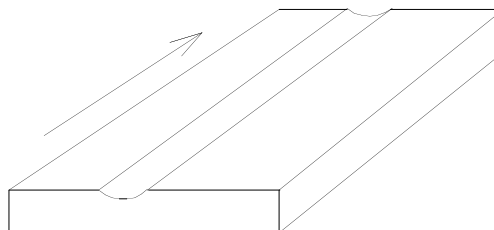
- dirt on grinding belt or roller

3. Surface defects across the work piece



- defective belt joint
- dirt on calibration roller

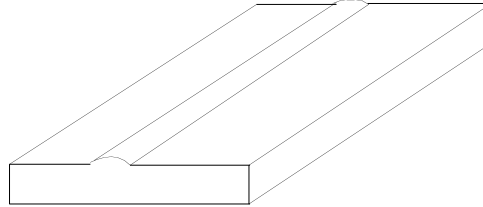
4. Longitudinal groove



- dirt on roller

- dirt on platen – damaged contact surface

#### 5. Longitudinal rib



- groove on roller
- groove on platen
- grinding belt damage

### 9. PNEUMATICALLY SUSPENDED AND ADJUSTABLE PLATEN

The pneumatically suspended and adjustable platen is mounted in the grinding unit as an option. This platen allows the grinding of veneered and solid wood pieces as well as grinding of varnished parts.

The grinding with this platen is a finishing operation with material removal of about 0.1 mm (depending on the belt grain size), with the platen following the part surface with about 1 mm tolerance. The compression force by which the belt is pressed against the worked piece surface can be smoothly adjusted by changing the pressure in the platen pressure reduction valve unit (0.01 to 0.04 MPa).

The parts to be ground with the pneumatic platen must be first calibrated (i.e. before veneer lining). If the flowing platen is out of use, it can be lifted over the belt by operating the manual valve lever and put out of operation. The platen bar can be removed on the right-hand side of the machine after opening the side door.

### 10. EXTENDED TABLE

The machine table extension serves for improved support for long work pieces. The extension pieces can be attached to either of or both the front and back tables as necessary. The extension piece is fitted with two rollers adjustable vertically to fit the table and the grinding belt positions.

### 11. AUTOMATIC FEED BELT CENTERING

Automatic feed belt centring serves for automatic centring of the belt on the table feed rollers and the device is available as an extra option. This device improves the machine operator comfort and it is recommended by the manufacturer mainly for SPB 910/1010 machines.

The device includes a mechanism designed to tilt the table front roller with a pneumatic cylinder operated by a solenoid valve actuated by the end stop following the left-hand edge of the feed belt.

With this system fitted, only the basic tightening of the feed belt is made manually and the belt requires no adjustment during the machine operation.


### 12. EXPANSION OF THE WIDE-BELT SANDING MACHINE BY ANOTHER AGGREGATE


At the special request of clients, it is possible to expand the existing construction to include another milling aggregate.


For work with this aggregate, it is necessary to familiarise oneself before its running with the following instructions:





- 1) Principles of safety and hygiene of work. These principles are identical with the principles mentioned in the Manual for R/C wide-belt sanding machines on pages 2 and 3 of this Manual, expanded by the following principles:

 Before each running of the machine, check whether the planing roller is not damaged and whether it is correctly adjusted.

 The SPB R/C/F wide-belt sanding machine must not be operated without perfectly fixed protective covers and with a damaged planing roller and feeding roller.


 During the operation of the machine it is forbidden to touch any moving parts.


 Carry out regular inspection and cleaning of the machine. Possible repairs should be done by qualified mechanics. In the case of replacement of planing blades, during inspections and cleaning of the machine, disconnect the machine from the electric distribution network by switching off the main switch.

 When the machine is in operation, never put your hands near the planing and feeding rollers and do not handle any items in proximity to the belt.

- 2) Specification and manner of use

THE THICKENING MACHINE IS USED FOR PLANING OF THE WOODEN LAYER FROM ONE SIDE OF THE MATERIAL FOR THE PURPOSE OF ACHIEVING REQUIRED THICKNESS AND NECESSARY SMOOTHNESS OF THE SURFACE.

 The thickening machine is used in a dry environment and must not be used in an environment with the risk of detonation.

 It is forbidden to plane on the machine very large workpieces for which the keeping of pressing force is not guaranteed and whose mass may cause disproportionate loading of the feeding belt and milling roller. It is not permitted to mill very small pieces which cannot be reliably fixed.

- 3) Technical data

Largest width of planing	mm	1100
Thickness	mm	5
NUMBER OF REVOLUTIONS OF BLADING ROLLER	RPM	4500
DIAMETER OF PLANING	mm	150
USED PLATES FROM HARD METAL	mm	14 x 14 x 2.2
MAX. THICKNESS OF TOOLED MATERIAL	mm	160
MIN. THICKNESS OF TOOLED MATERIAL	mm	3
MIN. LENGTH OF TOOLED MATERIAL	mm	300
OUTPUT OF MAIN ENGINE	kW	15
REVOLUTIONS PER MINUTE OF MAIN ENGINE (SYNCHON.)	3000	
DIAMETER OF draft-tube	mm	180
CONSUMPTION OF AIR FOR EXHAUSTION OF CHIPS	m <sup>3</sup> /hour	3500

4) CONTROL ELEMENTS ARE MENTIONED IN ANNEXES TO DIAGRAMS

5) CONNECTION TO THE EXHAUSTION DEVICE

For the connection of the exhaustion device, the machine is equipped on the upper cover of the planing unit with an exhaustion adapter that is connected through a connecting flexible hose to the exhaustion device. The connecting hose must have the connecting diameter of 180 mm. The hose is arrested on the neck by a clamp.



EXHAUSTION DEVICE MUST FULFIL MINIMALLY TECHNICAL REQUIREMENTS MENTIONED IN TECHNICAL DATA.



THE EXHAUSTION DEVICE MUST FULFIL REQUIREMENTS FOR EXHAUSTION OF EXPLOSIVE DUST AND PARTICLES WHOSE FRACTIONS ARE SMALLER THAN 0.5 MM. THE EXHAUSTION SYSTEM MUST BE PROTECTED AGAINST ELECTRO-STATIC CHARGE.



THE MACHINE MUST NOT BE USED WITHOUT AN EXHAUSTION DEVICE.

6) PREPARATION OF THE AGGREGATE AND PUTTING INTO OPERATION

After detailed familiarisation with the description of equipment, it is necessary to check the level of abrasion of blades and their fixation on the planing roller. In addition, it is necessary to connect the supply of electric current, switch on the main switch and press the white button, which must shine, and to check the direction of rotation of the blade roller (the direction of rotation of the roller must be opposite to the direction of movement of the tooled material) – counter-movement tooling. Checking is performed by short running of the machine by means of the green button and immediate stopping of the machine by the red button.

Attention: If the revolutions are not correct, it is necessary to reconnect 2 phases on the terminal box of the machine.

If the revolutions of the machine are correct, press the green button so that the reconnection of the engine into the triangle is performed automatically. Connect the movement by means of the green button, disconnection of the machine is performed by the red button. It is possible to smoothly change the speed of movement by rotation of the potentiometer on the instrument panel.

Adjustment of the table to the required distance from the blade shaft is performed by pressing the control lever in the direction of the required change. Immediate disconnection of the machines is performed by means of the "Stop" button. The disconnection of movement can be performed using the red button. Full disconnection of circuits from the electric network follows after the switching off of the main switch.

The voltage is not disconnected on the terminal box and the terminals of the main switch.

For safe stopping of the planing roller, the machine is equipped with an electromagnetic brake of the driving engine. The engine brake is active (i.e. it brakes) in the case of each disconnection of the planing aggregate by the red control button of engine No.1.

The brake is active if the machine is not connected to the electric network. The machine is also braked when the control voltage is on (the light signal lamp is on), for automatic deactivation of the brake will take place during the starting of the main driving engine (green button No.1 on the control panel).

For safe releasing of the planing roller during servicing activities, it is possible to release the brake when the main switch is on and the lockable three-position switch is in the third right side position "SERVICE". In this position it is not possible to run the machine, only the brake is released, as well as the planing roller.

After repair, put the switch back into the first left position "NORMAL" and remove the key from the lock. Now the machine is prepared for starting of the control voltage.

The middle position of the switch "MODE" is the zero position during which it is not possible to run the machine or release the brake.

## 7) Description of the planing aggregate

The planing roller is driven by the electric engine mounted on the swinging plate in the lower part of the machine. The size of setting of the plate (2x nuts M12) makes it possible to tighten the V-belts. After tensioning the belts, tighten the released screw bolts. The planing roller is on its perimeter equipped with planing blades from hard metal with the dimensions of 14 x 14 x 2.2 mm in a spiral which can be turned after abrasion 4x by 90°, or possibly replaced. The planing roller is covered by a cover terminating in the exhaustion device. The cover can be removed by removing 2 M8 bolts for easy access during the cleaning and checking of the roller. The mentioned bolts must be properly tightened on the closed cover during operation.

Never run the aggregate when the cover is open. The size of maximum cutting is restricted by the front bar and is adjusted by the producer to 5 mm. To prevent back movement of the workpiece, in front of the roller there are a series of arresters.

To ensure the quality of planing, the machine is equipped with a front separated pressure bar with the possibility to regulate the tightening of springs for the pressure of the front bar, which makes it possible to plane pieces with various specific properties for tooling.

In front of the pressure bar and behind the planing roller there are two adjusted rubberised pressure rollers where the pressure force of the rollers can be smoothly adjusted on the springs of the leading units of the rollers. The rear roller is equipped with an arrester and a ratchet preventing back movement of the workpiece. Pressure forces are adjusted by the producer, including adjustment of rollers and bars.

## 8) Adjustment of the height of the table – identical to in the Manual for the R/C wide-belt sanding machine (page 14).

## 9) Maintenance of the planing aggregate

The thickening machine is a machine with very simple construction which does not require any maintenance of a special nature. During maintenance of the machine, keep to the following instructions:

- a. Clean the machine regularly of cuttings and sanding dust depending on the intensity of use. The best manner of cleaning is by suction. The minimum frequency of cleaning is always after eight operating hours. Pay special attention to cleaning of the roller. Dirt may cause the unbalancing of rollers and the origination of vibrations or bad functioning of the feeding mechanism.
- b. When tooling, regularly check the wearing, blocking and damage of the roller. In the case of wearing or damage, immediately start repairing.

- c. There are no lubrication places on the machine: bearings rollers and engine are filled with lubrication oil. Check the filling after 5,000 hours of operation.



ASSIGN MAINTENANCE AND REPAIR OF MECHANICAL PARTS OF THE MACHINE AND THE ELECTRIC SYSTEM TO QUALIFIED MECHANICS OR SERVICE STAFF OF THE PRODUCER.

### 13. Technical adjustments

#### 13.1 Come outing a machine to operation after emergency stoppage

Wide-belt sanding machines of series F/R/C are equipped with electric system, which can make working table go away by emergency stoppage machine in case, that workpiece is under sanding aggregate and is not possible take it out and also in cases, that is not possible make releasing and setting up of sanding belt to working position and it 's repeated stretching.

If is coming to deflect of sanding belt and are stopped end switches, which are limiting position of belt, is not possible tie up perimeter of operating tension and carry out go away of table.

In this case proceed by successive instructions:

1. Press button – EMERGENCY STOP on front control panel of machine.
2. Press stopledge to stop state/deflect lower port of ledge to the back.
3. Press control button of table lift of table direct down – table starts to go direct down.
4. After the table go away disconnect off main switch, open side door, release sanding belt, make it's balance to working position and repeated stretch.
5. Close side door, press main switch and make tie up of operating tension and start of sanding aggregate.

#### 13.2 Exchange of sanding belts by machines that are equipped with oscillation taking XU8M TELEMECANIQUE.

Machines, which have this taking, have only one direct ray for control position of sanding belt. Outer positions of sanding belt are checking by mechanical microswitch with ceramic roll. By exchanging and stretching belt is force the belt set so up, that it's limits don't touch ceramic rolls and that to the limits are out of them cca 5 mm.